

REMARKS

The Examiner objected to the drawings because there appeared to be a discrepancy between the written description of the axis of the connecting pipe 8 and what was illustrated in Fig. 1. The specification has been amended to address this.

The Examiner also objected to the drawings because of an inconsistency between Figs. 1 and 2. Fig. 2 is proposed to be amended as shown in the attached photocopy to address this. Formal drawings including this proposed revision are also enclosed.

The Examiner further objected to the drawings because the lead line for numeral 116 in Fig. 2 appeared to point to two different features. In Fig. 2, the lead line for numeral 116 does not split. However, it does pass near a phantom line that illustrates the radial position of the fasteners 43 used to secure the 39 centering ring to the coupling sleeve 31. In the enclosed formal drawings, this distinction is more clearly illustrated. Thus, revision of the drawings in this regard is not believed to be necessary

Lastly, the Examiner objected to the drawings because certain features were not believed to be shown. This objection is respectfully traversed. Fig. 2 does, in fact, show two the “transmitting faces for transmitting torque” for the coupling sleeve - one is shown at the end of lead line for numeral 33, and the other is shown at the corresponding location at the bottom of the receiving bore. Also, Fig. 2 does, in fact, show the “cylindrical bore that is provided in the region of the aperture” at the end of lead line 45. The applicant agrees with the Examiner that additional views would more clearly illustrate these structures. However, it is believed that the existing drawings adequately illustrate these features of the invention.

Independent Claim 1 has been amended to correct the minor typographical error noted by the Examiner. Independent Claim 1 has also been amended to change the word “aperture” to “opening” so as to be consistent with the usage of that term in the specification.

The Examiner objected to the claims because the specification did not show “how the radial play due to the connecting pipe 8 (see Page 10, Lines 13-17) is

avoided by the disclosed invention.” This objection is respectfully traversed. At Page 10, Lines 16-17, the specification states that “there exists a radial play between the coupling sleeve 10 and the journal 11 in order to permit assembly.” Such radial play is avoided by the engagement of the centering projection 38 with the centering ring 39 and by the engagement of the cylindrical outer face 46 of the journal with the cylindrical bore 45 of the ring 44 secured to the coupling sleeve 31 (see Page 11, Lines 10-22). Thus, it is believed that the specification adequately explains how radial play is avoided.

The Examiner rejected Claims 1 and 4 under 35 U.S.C. 102(b) as being anticipated by either the Majoor reference or the WO 2004/018887 reference. These rejections are respectfully traversed in light of the amended language of Claim 1.

Claim 1 now defines the invention as a universal joint shaft, such as for driving a roll in a rolling mill, that includes a connecting shaft, a first universal joint that is attached to a first end of the connecting shaft, a second universal joint that is attached to a second end of the connecting shaft, and a coupling sleeve that defines a longitudinal axis and that is connected to the first universal joint. The coupling sleeve includes a receiving bore with an opening for receiving a journal of a roll, wherein the receiving bore forms transmitting faces for transmitting torque. The coupling sleeve also includes a cylindrical bore that is provided in the region of the opening for supporting the journal against the cylindrical bore by means of a correspondingly shaped cylindrical outer face. The cylindrical bore begins at the opening of the receiving bore and extends completely throughout the entire axial length of the ring. The coupling sleeve further includes a first conical face that is arranged concentrically relative to the longitudinal axis and remote from the opening and which is provided for contacting a correspondingly designed first counter face at the journal of the roll in order to avoid radial play, as well as means which force-load the first conical face along the longitudinal axis towards the roll.

The Majoor reference does not show or suggest the claimed invention. Specifically, the Majoor reference does not show or suggest the claimed coupling sleeve that includes a cylindrical bore that is provided in the region of the opening for

supporting the journal against the cylindrical bore by means of a correspondingly shaped cylindrical outer face. Rather, the Majoor reference discloses a coupling sleeve that includes a split ring 13 that is not cylindrical in shape, as specifically claimed, but is provided with the same flat faces for transmitting torque as the receiving bore. Thus, it is believed that the claimed invention is clearly patentable over the Majoor reference.

The WO 2004/018887 reference does not show or suggest the claimed coupling sleeve having a cylindrical bore 45 that begins at the opening of the receiving bore and extends completely throughout the entire axial length of the ring, as specifically claimed. Rather, as shown in Fig. 2 of the WO 2004/018887 reference, a conical or tapered bore 13 is defined by the element 11 in the region of the aperture. Thus, it is believed that the claimed invention is clearly patentable over the WO 2004/018887 reference.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Richard S. MacMillan", written over a horizontal line.

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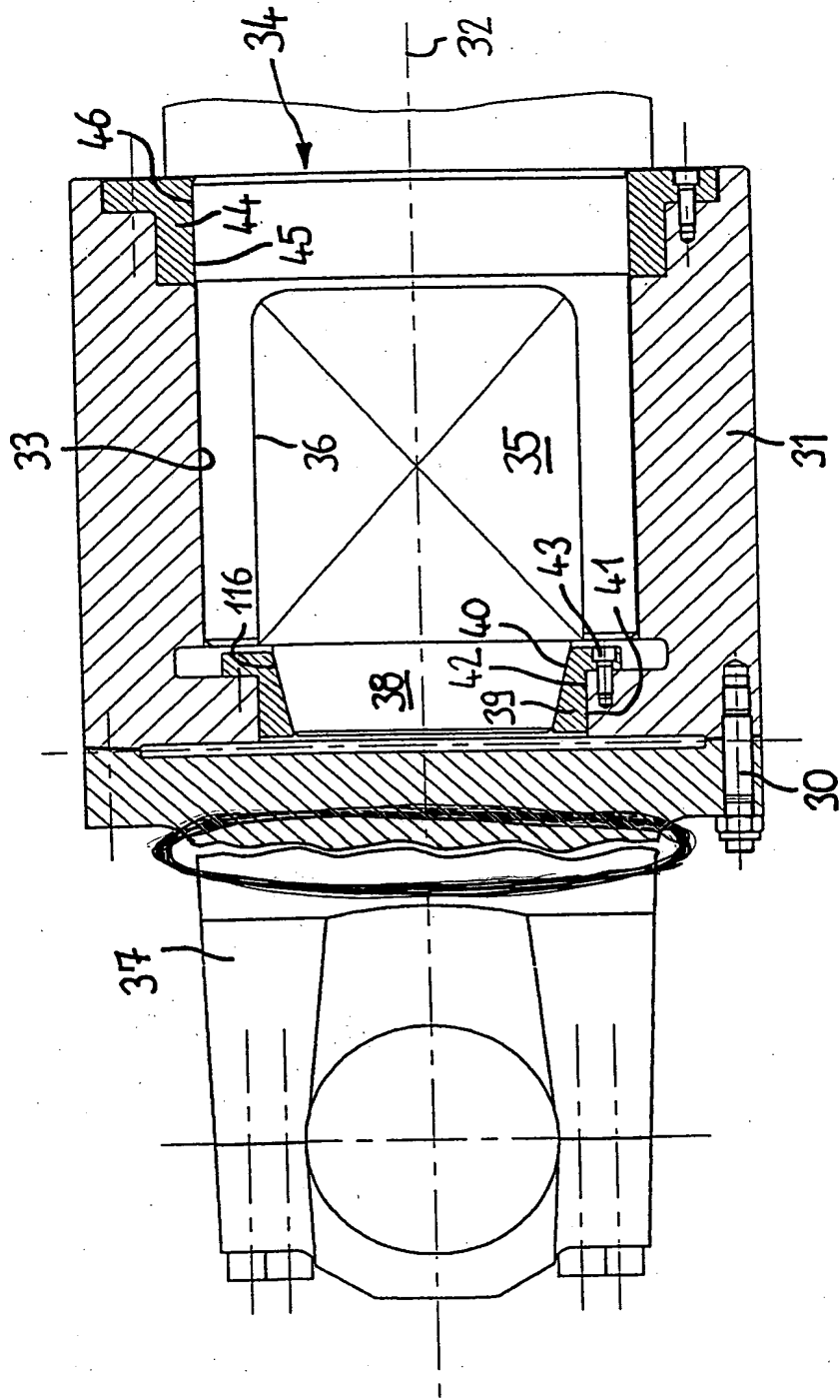


FIG. 2